

## **REMARKS/ARGUMENTS**

This response is being submitted without amending any claims.

In the Office Action, the Examiner indicated that the prior election is treated as an election without traverse as the Applicant "did not distinctly and specifically point out the supposed errors in the restriction requirement". The Applicant agrees that the election was made without traverse but the Applicant never indicated that there were "supposed errors" in the restriction requirement. To what does "supposed errors" refer?

In the Office Action the Examiner maintained three of the previously asserted provisional obviousness-type double patenting rejections. In the Office Action, the Examiner indicated that a rejection based on non-statutory double patenting can be avoided by filing a terminal disclaimer. Applicant understands that when inventions claimed within a patent and an application, or within two applications are commonly owned at the time the later invention was made, it is possible to overcome a non-statutory double patenting rejection by filing a terminal disclaimer. However, as the invention of the present application is owned by the University of Southern California and the inventions in the copending applications are owned by Microfabrica Inc., it is believed that terminal disclaimers cannot be used to overcome the rejections. If Applicant's understanding is incorrect, any clarification that the Examiner can provide would be appreciated.

In particular, claims 1 - 24 of the present application were provisionally rejected under the judicially created doctrine of obviousness double type patenting as being unpatentable over (A) Claims 1 - 48 of copending Application No. 10/434,519 in view of McFarland et al.; (B) Claims 1 - 50 of copending Application No. 10/271,574 in view of McFarland et al.; and (C) over claims 1-20 of copending Application No. 10/724,515 in view of McFarland et al. Each of these three obviousness type double patenting rejections is discussed herein below.

### **OTDP over Application No. 10/434,519 in view of McFarland et al.**

Starting with the first of these rejections, Applicant notes that the obviousness type double patenting rejection of the instant claims in view of the claims in the '519 application is improper for at least two reasons: (1) there is no common inventor or

owner between the present application and those of the '519 application and there was no joint research agreement between the owner of the present application and the owner of the '519 application, and (2) the instant claims are not obvious in view of the claims in the '519 application alone or in combination with McFarland.

First, in section 804 of the MPEP, it is indicated that "Before consideration can be given to the issue of double patenting, two or more patents or applications must have at least one common inventor and/or be either commonly assigned/owned or non-commonly assigned/owned but subject to a joint research agreement as set forth in 35 USC 103(c)(2) and (3) pursuant to the CREATE act. As these conditions have not been met, it is believed that the provisional non-obviousness double patent rejection of the claims of the present application in view of the claims in the '519 application is improper. Withdrawal of the rejection is earnestly solicited.

Second, present application contains two independent claims (i.e. claims 1 and 23) with claim 1 being directed to a process for forming a multilayer three-dimensional structure while claim 23 is directed to a process for modifying a substrate. Both claims 1 and 23 include, inter alia, the following features: (1) supplying a multi-cell mask with the cells including independently controllable electrodes, (2) bringing a multi-cell mask into contact with a substrate, and (3) applying a desired electrical activation to at least one desired cell electrode, to the substrate, and to any other desired electrode or electrodes, such that a desired material is selectively deposited onto the substrate. None of these elements are found in the claims of the '519 application.

On the other hand, the '519 application includes independent claims 23, 25, 28, 33, and 39. Claims 23, 25, and 28 of the '519 application, inter alia, require, "beginning a deposition operation to form a portion of a current layer prior to completing a deposition operation to form a portion of a prior layer". This feature is not found in any of the claims of the present application. Claim 33 of the '519 application, inter alia, requires that "deposition of the at least one structural material in association with a current layer results in deposition of the at least one structural material into one or more voids in a partially formed prior layer". This feature is not found in any of the claims of the present application. Finally, claim 39 of the '519 application, inter alia, requires "forming interlacing elements in association with given layers that extend from the given

layers into preceding layers and result in higher levels of interlacing between the one or more materials deposited in association with the given layers and one or more materials deposited in association with the preceding layers than would exist in absence of the interlacing elements". This feature is not found in any of the claims of the present application.

Based on the differences between the subject matter claimed in the instant application and the subject matter claimed in the '519 application it is clear, though there is some overlap between the subject matter protected by the claims in each application, there is significant and patentably distinct subject matter included within the scope '519 claims that is excluded from the scope of the instant claims and conversely there is significant and patentably distinct subject matter included within the scope of the instant claims that is excluded from the scope of the '519 claims. In fact, the two applications are directed to patentably distinct improvements to the electrochemical fabrication methods disclosed in the background section of each application. To those of skill in the art, it is clear that one can practice the multi-cell masking methods of the present invention, where each cell of the mask has an independently controllable electrode, without practicing the layer interlacing methods of the '519 patent claims and vice-a-versa.

No combination of the '519 claims and the teaching of McFarland provide the invention as set forth in the instant claims. McFarland teaches the use of multiple electrodes to cause spatial variations, inter alia, in the deposition of materials; however, those electrodes are not part of a mask that is adhered to or contacted to a substrate or previously deposited material, where the mask defines deposition or etching regions on a substrate or previously deposited material via openings in the masking material. Instead the electrodes of McFarland are located within the substrate or behind the substrate and the locations and activation of the individual electrodes defines the spatial deposition characteristics achieved. As such, a combination of the '519 claims with the teachings of McFarland, at best, would only offer an embodiment where multiple layer structures were formed including interlacing of material deposited on successive layers, where some spatial attributes of the deposition, or etching, associated with one or more layers results from a plurality of electrodes located within a substrate or located behind

a substrate. No combination of the '519 claims and the teachings of McFarland lead to embodiments where individually controllable electrodes would form part of a deposition mask as set forth in the claims of the instant application. For each of the above noted reasons, this provisional double patent rejection is traversed and withdrawal is earnestly solicited.

OTDP over Application No. 10/271,574 in view of McFarland et al.

Turning to the second provisional rejection, Applicant notes that the '574 application (as pending) contains claims 1 - 19 and 21 - 33 of which claims 1, 16, 19, 23, 26, and 28 are independent. Each of claims 1, 16, 19, 23, 26, and 28 of the '574 application, inter alia require, "after said activating, relatively moving the face surface of the mask away from the substrate by a distance that is less than a distance that would cause separation of the mask sidewalls from the deposition sidewalls, and continuing application of the current so as to allow a height of the deposition to increase". This feature is not found in any of the claims in the present application and the elements included in the independent claims of the present application, as noted above, are not found in any of the claims of the '574 application. The inventions claimed in the present application and those claimed in the '574 application are directed to patentably distinct improvements of the electrochemical fabrication methods set forth in the preambles of the applications. Furthermore, no combination of the teachings of McFarland with the claims of the '574 application provide the inventions as set forth in the present application. The inventions set forth in the present application require the use of a multi-cell mask with each cell of the mask having an independently controllable electrode. The claims of the '574 application do not set forth such a requirement and none of the teachings of McFarland provide a mask, whose deposition regions are controlled by openings in the mask where each cell of the mask must include its own independently controllable electrode. At best, a combination of McFarland and the claims of the '574 application would provide a mask whose sidewalls mate to deposition sidewalls and which is pulled away from a substrate or previously deposited material during, or between, depositions and where a plurality of electrodes behind or within the substrate would cause variations in the spatial deposition of material between and within the openings in the mask. Though the above noted combination is possible, it is

not relevant to the invention as claimed in the instant application and it is further believed to be unworkable. No combination of the claims of the '574 patent and the teaching of McFarland provide a mask having cells where deposition or etching associated with each cell is controlled by an electrode that forms part of the cell. For these reasons, this provisional double patent rejection is believed to be traversed and withdrawal is earnestly solicited.

OTDP over Application No. 10/724,515 in view of McFarland et al.

Analogous arguments made against the second provisional double patenting rejection apply to the third provisional double patent rejection. Applicant notes that the '515 application (as pending) contains claims 1 - 23 of which claims 1, 14, and 17 are independent. Claim 1 of the '515 application, inter alia, requires "bringing a mating surface of a contact mask and a mating surface of the substrate together, wherein initial contact between the mating surface of the substrate and the mating surface of the contact mask occurs in a controlled manner at only selected locations, and wherein continued relative movement between the mask and the substrate bring substantially all relevant mating surfaces of the mask into contact with the substrate". This feature is not found in any of the claims of the instant application. Claim 14 of the '515 application, inter alia, requires "bringing a mating surface of a contact mask and a mating surface of the substrate together, wherein at initial contact, the mating surface of the mask has a first curvature and a mating surface of the substrate has a second curvature, wherein the first curvature has a nominal radius that is less than that of the second curvature, and wherein after initial contact a separation of the mask and the substrate is further reduced so that additional mating occurs and such that one or both of the first and second curvatures change & so that that first and second curvatures become more alike". This feature is not found in any of the claims of the instant application. Claim 17 of the '515 patent requires "bringing a mating surface of a contact mask and a mating surface of the substrate together, wherein at initial contact, the mating surface of the mask is more convex relative to the mating surface of the substrate, and wherein after further relative movement between the mask and the substrate mating is completed". This feature is not found in any of the claims of the instant application. The above noted

features of the claims of the instant application are likewise not found in the claims of the '515 patent.

The inventions claimed in the present application and those claimed in the '515 application are directed to patentably distinct improvements on the electrochemical fabrication methods set forth in the background sections of the applications. Furthermore, no combination of the teachings of McFarland with the claims of the '515 application provide the inventions as set forth in the present application. The inventions set forth in the present application require the use of a multi-cell mask with each cell of the mask having an independently controllable electrode. The claims of the '515 application do not set forth such a requirement and none of the teachings of McFarland provide a mask, whose deposition regions are controlled by openings in the mask, and where each cell of the mask must include its own independently controllable electrode. At best, a combination of McFarland and the claims of the '574 application would provide initial mating of a mask and a substrate which has a different configuration than the final mating configuration wherein deposition is not only controlled by the openings in the mask but also by a plurality of differently controlled electrodes placed within the substrate or on the opposite side of the substrate from where deposition is to occur. No combination of the claims of the '515 patent and the teaching of McFarland provide a mask having cells where deposition or etching associated with each cell is controlled by an electrode that forms part of the cell. For these reasons, this provisional double patent rejection is believed to be traversed and withdrawal is earnestly solicited.

In view of the remarks, the application is believed to be in condition for allowance and reconsideration and withdrawal of the rejections and passage to allowance is earnestly solicited. If any questions should arise concerning this application (or if it would otherwise be useful to discuss this application) please do not hesitate to contact the undersigned by phone.

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